

## DENSITY MANAGEMENT APPENDIX

### **Bruce Rittenhouse's (District Botanist) Notes taken at the Cooperative Forest Ecosystem Research "Young Stand Biodiversity Project Field Tour 9/16/98"**

I attended the Cooperative Forest Ecosystem Research (CFER) field tour to discuss ongoing research on young stand biodiversity and responses of certain species groups (lichens, bryophytes, amphibians, arthropods, and birds) from traditional density management projects across western Oregon. Attendees on the field tour included selected resource specialists from western Oregon BLM districts, those who conducted the research, and media folks from OSO and OSU Dept. of Forestry. We visited three sites; an old-growth stand, an un-thinned and thinned stand (approximately thinned 15 years ago). One objective of the meeting was for CFER to get input on an upcoming video they are going to produce about the project and what messages should come across in the video.

After introductions Ed Starkey and John Tappenier discussed the project. John then somewhat described the vegetation components within each of the three stands. Basically the project includes more than 15 triads consisting of an old-growth, thinned, and un-thinned stand. The thinned stands were done in the traditional methods (even spacing), in other words, no special treatments were done specifically for this project. The individual researchers then designed sampling protocols to look at biodiversity that were consistent among the three stands.

I have included the handouts and summary of research in the accompanying handouts. The notes briefly summarize their initial results and information not shown in the handouts. [note: the handouts were not included in this appendix. Bruce has transferred out of Coos Bay and his handouts are not available]

#### OLD-GROWTH STAND

John Tappenier began by discussing stand initiation following a disturbance and characteristics of old-growth forests. He stated that in many Coast Range old-growth stands that the older trees started at relatively low densities and had rapid growth rates early in life. These stands show a high heterogeneity in understory vegetation. One point brought up to include in the video was to compare the stand initiation and growth of natural, un-managed stands with our density management projects.

Lichens (Bruce McCune, OSU) - Began with importance of epiphytes (plants growing on plants). These include, nutrient cycling, hydrologic buffering, foundation of food webs, etc. Results show that in un-thinned stands the diversity is low, and remains in thinned stands (traditional method). In what he called "creatively-thinned" areas (variable thinning, leaving hardwoods, development of forest gaps) that the diversity of species increased. Along with species diversity changing, many of the old-growth associates (those that are dispersal- and substrate-limited) are present in these younger, thinned stands. The younger stands are dominated by generalist and "weedy" species while in old-growth and "creatively-thinned" stands the lichen community composition changes to include those old-growth associates. He also discussed "hotspots" where the lichen diversity was high. These areas include rock outcrops, riparian areas, hardwoods, and legacy components.

Discussion of Survey and Manage included if this project could help with survey protocols (no, since this is entirely different from protocols) and linking Plant Associations with determining high likelihood areas where Survey and Manage species occur. McCune basically responded to this with, you cannot use plant associations to predict where SM bryophytes and lichens will occur. These species do not follow the same rules as vascular plants and that it is not the plant association that is important but the substrate and microsite.

Shrub Epiphytes (Abbey Rosso, OSU) - Discussed how hardwoods, including trees and large shrubs (vine maple, rhododendron, etc.) are important for these epiphytes. Discussed retention of these components within thinned stands. The hardwood species within these stands are critical to the diversity and abundance of these species.

Amphibians (Bruce Bury, BRD, USGS) - Mentioned that there is a high variation in distribution and abundance of amphibians across western Oregon and between the Coast and Cascade Range. In general the diversity and abundance of amphibians were lower in un-thinned stands than in old-growth and thinned stands. Recommendations included retain/incorporate down wood, minimize soil disturbance, and maintain forest interior conditions.

Lepidopteran Moths (Jeff Miller, OSU) - This by far was the most interesting presentation! He began by giving a brief discussion of life history and that there is a definite phenology of moth species throughout the year, with peaks in spring and summer. Most moth species only are present for 2-3 weeks during the year. In other words, the species captured in May are different from those captured in August. The species diversity was relatively similar between old-growth, thinned, un-thinned, and clear cut (he was the only one who sampled in this) stands, but like the lichens, species composition changed from more generalist to specialist species. The majority of the species (46%) were hardwood feeders as caterpillars while only 11% were conifer feeders. This was consistent across all study sites. The interesting point about this is that while the functional group percentages were the same, the species composition between stands was different. Species diversity was directly related to the diversity of hardwoods present, with *Vaccinium*, *Holodiscus*, *Alnus*, *Arctostaphylos*, and *Ceanothus* being “hot-plants.”

Birds (Joan Hagar) - Bird diversity and abundance varied between the old-growth, thinned, and un-thinned stands. Habitat features within these stands that are important for bird species included hardwood trees and shrubs, snags, and large conifers. Shrub diversity appears to be tied directly with increased abundance and diversity of most species.

Overall Summary - All the presentations emphasized the importance of retaining hardwoods (or at least some legacy) within thinned stands. They also discussed in summary that if we want some of the objectives accomplished on the ground, the specialists should get out on the ground with the marking crews, and be present during the logging operations. If you expect the contract administrator to do this, it probably will not get done. More input during the implementation phase will really help accomplish these objectives. While maintaining these structures in the forest are important, the message should be not complete protection of these components, but retaining some portion of them. Then the stand develops, these legacy components can act as sources for repopulation.